

# PATENT COOPERATION TREATY

# PCT

## WRITTEN OPINION OF THE INTERNATIONAL SEARCHING AUTHORITY

(PCT Rule 43bis.1)

To:

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Date of mailing 19 April 2005 (19.04.2005)  
(day/month/year)

Applicant's or agent's file reference  
FP04027

**FOR FURTHER ACTION**  
See paragraph 2 below

International application No.  
PCT/KR 2004/001148

International filing date (day/month/year)  
14 May 2004 (14.05.2004)

Priority Date (day/month/year)  
30 May 2003 (30.05.2003)

International Patent Classification (IPC) or both national classification and IPC  
H04L 12/26, 12/46, 29/06

Applicant

LG ELECTRONICS, INC.

**1. This opinion contains indications relating to the following items:**

- ☒ Cont. No. I Basis of the opinion
- ☐ Cont. No. II Priority
- ☐ Cont. No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
- ☐ Cont. No. IV Lack of unity of invention
- ☒ Cont. No. V Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
- ☐ Cont. No. VI Certain documents cited
- ☐ Cont. No. VII Certain defects in the international application
- ☐ Cont. No. VIII Certain observations on the international application

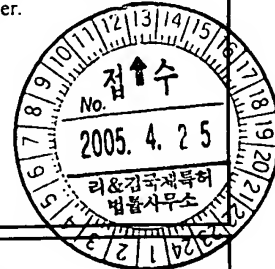
**2. FURTHER ACTION**

If a demand for international preliminary examination is made, this opinion will be considered to be a written opinion of the International Preliminary Examining Authority ("IPEA") except that this does not apply where the applicant chooses an Authority other than this one to be the IPEA and the chosen IPEA has notified the International Bureau under Rule 66.1bis(b) that written opinions of this International Searching Authority will not be so considered.

If this opinion is, as provided above, considered to be a written opinion of the IPEA, the applicant is invited to submit to the IPEA a written reply together, where appropriate, with amendments, before the expiration of 3 months from the date of mailing of Form PCT/ISA/220 or before the expiration of 22 months from the priority date, whichever expires later.

For further options, see Form PCT/ISA/220.

**3. For further details, see notes to Form PCT/ISA/220.**



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WRITTEN OPINION OF THE  
INTERNATIONAL SEARCHING AUTHORITY

10/558435

International application No.  
PCT/KR 2004/001148

Continuation No. I

IAP16 Rec'd PCT/PTO 29 NOV 2005

Basis of the opinion

1. With regard to the **language**, this opinion has been established on the basis of the international application in the language in which it was filed.

Continuation No. V

Reasoned statement under Rule 43bis.1(a)(i) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims 1-54	YES
	Claims ----	NO
Inventive step (IS)	Claims ----	YES
	Claims 1-54	NO
Industrial applicability (IA)	Claims 1-54	YES
	Claims ----	NO

2. Citations and explanations:

Cited documents:

- D1 Koon-Seok Lee, Hoan-Jong Choi, Chang-Ho Kim, Seung-Myun Baek, 'A new control protocol for home appliances-LnCP.' In: International Symposium on Industrial Electronics, 2001. Proceedings. ISIE 2001. 12-16 June 2001 pages: 286 – 291 volume 1
- D2 Yi-Min Wang; Russel, W.; Arora, A.; JunXu; Jagannatthan, R.K.; 'Towards dependable home networking: an experience report.' In: Proceedings International Conference on Dependable Systems and Networks, 2000. DSN 200025 - 28 June 2000, Los Alamitos, CA, USA, IEEE Computer Society pages: 43 – 48

The cited document D1 is of particular relevance to the subject-matter of the present application because the features of claims 1 to 54 do not involve an inventive step with respect to D1.

This document discloses a description of the control protocol, LnCP (Living network Control Protocol), targeting at low implementation cost networking system in home environment. The protocol is based on multi-master system and uses a peer-to-peer communication model.

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The network is constructed by linking appliances, which implement the LnCP on their microcontroller, via a networking bus. Some appliances that do not have microcontroller are combined with a module, which contains LnCP and enables them to be networked. Single wire or power lines are the candidates for the medium as networking bus. If power line is used as medium then each appliance must connect to power line transceiver, whose encoding method is not defined in LnCP. Any appliance or the combination of appliance and a module, which is attached to the bus on the network, is referred to as a node. The network interface must ensure that each node has half duplex communications, and can sense activity on the network.

The protocol is based on the ISO Open Systems Interconnect (OSI) seven layers network protocol model. LnCP layering consists of the Physical Layer, Data Link Layer and Application Layer. Each layer follows the divisions established by the OSI standard for protocol tasks. The layering is described below. The protocol defines only the packet to communicate on a peer-to-peer basis with Data Link Layer. Each packet is made up of a header, a body and a trailer. Header, body and trailer contain the communication, control, and error detection information respectively.

When packet data are received from other device, the Data Link Layer investigates recipient address, packet type, protocol version and bit error with the information of header and trailer. If there is not any error in packet data that layer hand the body data over Application Layer. When body data are received from Application Layer, the Data Link Layer structures a packet, controls the communication process and that passed the packet data to MAC layer.

The living network control protocol described in D1 is based on the OSI network protocol model, including various layers and PDUs exchanged between them. Therefore, the features described in the present application arise in obvious way from the state of the art. Consequently, the claimed invention of claims 1 to 54 cannot be considered to involve an inventive step.

Document D2 discloses the Aladdin home networking system, which is the result of research on the heterogeneity of various in-home networks, the undependable nature of consumer devices, and the lack of knowledgeable system administrators in the home environment.

In the Aladdin research project [WRAOO], the focus is on providing the system infrastructure for device connectivity by integrating the seven in-home networks into one dependable home network: powerline, phoneline, RF (Radio Frequency), IR (InfraRed), A/V LAN, security, and temperature control. The goal is to allow the users to plug in a device on any of these networks and make it part of the Aladdin system so that it can be used in conjunction with all the other devices to accomplish higher-level system-or user-directed tasks.

Summarizing, D2 features a home network system based on a protocol, but it does not describe the features of the usual protocol parts like interfaces and primitives in detail. Therefore it merely defines the state of the art.

Industrial applicability is given.